

CONFIDENTIAL

Security Information

10 November 1953

MEMORANDUM FOR: Management Officer

FROM: Assistant Director, OCD

SUBJECT: IBM Type X79h Electronic Searching Selector

REFERENCE: Your memo, subject as above, dated 6 November 1953

1. I agree that the new machine may possibly prove to have considerable potential for various types of intelligence reference work, and I'm of the opinion that we will not be able to assess its potential in any thorough manner save by bringing one of them into the Agency and trying it out experimentally.

2. Due to current budgetary and manpower pressures, I do not feel that OCD should initiate Project Review Committee action for so expensive a machine as this on an experimental basis. However, it would appear to be appropriate for the Organization and Methods Service to take the leadership in this experimental venture, and I shall be glad to cooperate with OMS in testing the machine if one is procured.

3. It is possible that the machine might be particularly valuable in handling the file of Electro-Magnetic data which is to be built up and staffed in Barton Hall by a section of the Special Register. Hence I suggest that the machine, if procured, be placed in that area. Any advance planning for this operation may be carried out by your people in conjunction with [REDACTED] of OCD. The latter will be in charge of the Barton Hall section of Special Register, and he is now engaged in advance planning for its work.

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Document No.	
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Original Document No.	
Next Page No.	
Page No.	
Date	

/s/

James M. Andrews

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Assistant Director for Collection and Dissemination

Management Officer

Recommendation to Acquire One IBM Type 1794 Electronic Searching Selector.

1. Since April 1952, laboratory models of a newly developed IBM punched-card electronic scanning machine equipment have been on loan to the Agency for the purpose of determining their usefulness in connection with certain of our documentation problems.

2. As the result of various studies and experiments, it was found that the operating characteristics of the scanning machine provided a rapid and versatile means for searching for and recalling information recorded in punched-card form and would provide a solution to a number of documentation problems throughout the Agency.

3. However, the usefulness of the scanning machine, as designed, was limited and the cost of building production models could not be justified because:

a. The scanning machine could be applied only to files of cards punched in a special manner which meant that the recording of information to be indexed and searched could not be started until special key punches were built and delivered and the scanning machine could not be used for searching existing files of conventionally punched fixed-field cards.

b. Recording the information by unique punched-hole patterns required the costly design and construction of key punches, transcribing and sorting machines in addition to the scanning machine.

4. These objectional factors of limited use and high cost were made known to IBM and their engineers overcame them by designing a scanning machine which will accept cards punched in the conventional manner and also, will be able to search established files of punched fixed-field cards. This change in operating characteristics has greatly increased the potential use of the scanning machine in the Agency and substantially reduced equipment costs. The scanning machine is the only novel piece of equipment that needs to be produced. All other auxiliary equipment for key punching and performing other operations is on hand.

5. IBM was requested to inform the Agency if it would construct production models of the scanning machine and if so to inform us as to the costs and terms for use. IBM has now informed the Agency that it will

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hand-build four pre-production experimental models of the scanning machine, now designated as "IBM X794 Electronic Searching Selector". One of these machines will be applied by IBM to its own documentation problems. A second machine has been contracted for by the Battelle Memorial Institute. The two remaining machines may be obtained by the Agency. A price of \$50,000 for three years use of a machine has been established by IBM. This fee does not cover the construction costs which are being met by IBM who is contributing this substantial amount to the program presumably because it is confident that the machine will eventually be mass produced and become a standard unit in its line of business machines.

Since the government cannot pay for services until rendered, IBM has agreed to rent the machines to the Agency for \$1,400.00 a month with the mutual understanding that the machines will be retained for a period of three years.

If mass production models are available prior to the end of the three year period, IBM will replace the hand-built pre-production models with production models. The rental of a production model will be substantially less and in line with the rental of other units of its punched-card equipment.

If production models are not available at the end of the three year period, the contract for the pre-production models may be extended and the rental would be reduced to the rental price of a production model.

The contract which would be signed would be the same as are now negotiated for standard equipment in respect to mechanical service, etc.

6. It is the opinion of this Office that two X794 machines should be rented for the following reasons:

a. There are certain documentation requirements in the Agency which cannot be economically or conveniently met through the application of conventional punched card equipment and methods. Some of these requirements have been considered and it has been determined that the X794 would provide a solution. These and other existing problems require further study, procedural development and testing through pilot operations before they can be placed on an operational basis. One machine would be used for this purpose.

b. The X794 can be used to search existing indices of fixed-field punched-cards. The machine operates at a higher speed than a 101 Statistical Machine, it "looks" at all the information punched in an 80 column card in one pass through the machine and is capable of searching for information varying in length from 1 to 80 columns or several bits of information of varying length within an 80 column limit. It is believed that immediate operational advantage could be obtained by applying the machine to searching problems where the 101 machine is now being used. However, the full extent to which the X794 could be applied to establish punched-card files can only be determined through operational use, experimentation, and test runs. This Office is confident that definite benefits will be realized within a short time after its installation.

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7. The operational and experimental work lies mainly in the field of substantive intelligence. Therefore, it is proposed that a Machine (s) be installed and operated in CD. In regard to applications, it would be the responsibility of O&M Service to investigate the needs in various areas of the Agency, develop procedures, conduct experiments, and supervise pilot run in close collaboration with members of the CD Staff. Upon determination by CD, O&M and the operational office effected that an experimental application is feasible, it would then become an operational responsibility of CI.

8. The foregoing points were discussed by [REDACTED] of O&M with [REDACTED] of CD on 26 October 1953. It was agreed by the CD members that one machine should be acquired for operational-experimental use provided funds for the rental of the equipment were available. [REDACTED] stated that if necessary the prospective users who would benefit through the use of the machine would be asked to contribute from their appropriated funds. This arrangement can be made if necessary. The funds needed are as follows:

a. The earliest date a machine can be delivered is January 1955 which would be in the last half of FY '55.

b. The rental for six months in FY '55 would be \$1400.00 x 6 or \$8400.00 plus 10% Excise tax or a total of \$9240.00.

c. At the time the budget for FY '56 is being developed, the rental for the entire fiscal year of 1956 would be requested.

9. The proposal to rent a second machine for additional experimental purposes will be the subject of a staff study which will require several days for preparation and documentation. However, it is necessary for us to inform INM now of our intention to rent one machine so that they may start final design and other preliminary work on the machine. The actual fabrication of parts for the machine will not start for 60 days and a decision on our part to rent a record machine must be determined prior to the termination of the 60 day period.

10. In conclusion we would like to point out that there are immediate benefits to be derived from the new machine, in conjunction with the punch card files already established, also so that the Agency will receive immediate benefits from the expenditure of these funds. In addition the machine will be for certain experimental work, now being undertaken, and other ideas now under study. All of which indicate that further benefits may be expected.

11. We therefore recommend that a letter of intent to rent one machine be issued at this time.

W. L. PEEL

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